

Table 1. System Parameters for Kepler-8

Parameter	Value	Notes
<i>Transit and orbital parameters</i>		
Orbital period P (d)	$3.52254^{+0.00003}_{-0.00005}$	A
Midtransit time E (HJD)	$2454954.1182^{+0.0003}_{-0.0004}$	A
Scaled semimajor axis a/R_\star	$6.97^{+0.20}_{-0.24}$	A
Scaled planet radius R_P/R_\star	$0.09809^{+0.00040}_{-0.00046}$	A
Impact parameter $b \equiv a \cos i / R_\star$	0.724 ± 0.020	A
Orbital inclination i (deg)	$84.07^\circ 2 \pm +0.33$	A
Orbital semi-amplitude K (m s^{-1})	68.4 ± 12.0	B
Orbital eccentricity e	0 (adopted)	B
Center-of-mass velocity γ (m s^{-1})	-4.2	B
<i>Observed stellar parameters</i>		
Effective temperature T_{eff} (K)	6213 ± 150	C
Spectroscopic gravity $\log g$ (cgs)	4.28 ± 0.10	C
Metallicity [Fe/H]	-0.055 ± 0.03	C
Projected rotation Velocity $v \sin i$ (km s^{-1})	10.5 ± 0.7	C
Absolute radial velocity (km s^{-1})	-52.72 ± 0.10	
<i>Derived stellar parameters</i>		
Mass $M_\star(M_\odot)$	$1.213^{+0.067}_{-0.063}$	D
Radius $R_\star(R_\odot)$	$1.486^{+0.053}_{-0.062}$	D
Surface gravity $\log g_\star$ (cgs)	4.174 ± 0.026	D
Luminosity $L_\star(L_\odot)$	$4.03^{+0.52}_{-0.54}$	D
Absolute V magnitude M_V (mag)	3.28 ± 0.15	D
Age (Gyr)	3.84 ± 1.5	D
Distance (pc)	1330 ± 180	D
<i>Planetary parameters</i>		
Mass $M_P(M_J)$	$0.603^{+0.13}_{-0.19}$	D
Radius $R_P(R_J)$	$1.419^{+0.056}_{-0.058}$	D
Density ρ_P (g cm^{-3})	0.261 ± 0.071	D
Surface gravity $\log g_P$ (cgs)	2.871 ± 0.119	D
Orbital semimajor axis a (AU)	$0.0483^{+0.0006}_{-0.0012}$	E
Equilibrium temperature T_{eq} (K)	1764 ± 200	F

Note. —

- A: Based primarily on the photometry.
- B: Based on the photometry and radial velocities.
- C: Based on an SME analysis of the Keck-HIRES spectra,
- D: Based on the Yale-Yonsei stellar evolution tracks.
- E: Based on Newton's version of Kepler's Third Law.
- F: Assumes Bond albedo = 0.1 and complete redistribution.